Probabilistic reasoning as developed by John Locke can provide the English teacher with a useful system for teaching the research paper since it consists of four major strategies for probing a subject: (1) the use of maxims or principles, (2) the framing of hypotheses, (3) the use of analogy, and (4) the reliance on authority. However, it is the fourth method that provides the underpinning of the freshman research paper. Because of the untrustworthiness of second-hand evidence, Locke outlined six specific criteria for weighing testimonies. Consideration of these criteria may promote the skepticism that student researchers almost entirely lack. The first criterion is the number of witnesses that report on a given incident, while the second is the integrity of the witnesses. The third criterion is the author's design, intention, and purpose or goal in writing the piece and presenting the evidence, and the fourth is the circumstances that gave rise to the discourse. The evaluation of these criteria requires the students to examine the historical and political contexts of the source to determine what motivated the author to produce the piece of writing. The fifth criterion requires students to examine the internal consistency of the document. Finally, the sixth criterion examines the contrary testimonies on the subject. By using these criteria, students can learn to analyze and evaluate sources rather than use them as support in the simple sense of the term. (HOD)
LocLean Epistemology and the Freshman Research Paper

Few English teachers would deny that the freshman English research paper is in trouble. In a recent article in *College English*, Richard Larson argues convincingly that English teachers should not even pretend to teach sophisticated research methodologies; this should be the job of professors in the content areas. This is a powerful argument. How can English teachers prepare a student to write a sophisticated research paper in anthropology? Unless they know the conventions and issues of that field, they can't.

At least part of the problem is that the research paper is an artificial construct that has, I would like to argue, its basis in a philosophical system that many English teachers no longer understand or accept: empiricism. Empirical philosophy, as presented by 17th and 18th century philosophers such as Locke and Hume, argued that all knowledge developed from the comparison, or association, of ideas. Truth, for Locke, resided in the proposition, which consisted of a subject and a predicate, each of which was the sign of an idea. Each idea entered the mind through the senses. Learning and judgment are advanced by determining the agreement or disagreement of these ideas and knowledge develops when these relationships between ideas is immediately and certainly perceptible. In fact, Locke's entire system of epistemology presented in *An Essay concerning Human Understanding* is based on this intuitive grasp of the
fundamental relationship between ideas.

This connection, however, can be either intuitive or demonstrated. If intuitive, the agreement or disagreement between ideas is immediately apparent. This kind of knowledge grows from the mind's immediate apprehension of truth and is rare because few truths are simple and obvious enough to be so grasped by the human mind, which is, according to Locke, obtuse and limited.

The mind can, however, discover truth by demonstration, which is the association of ideas in long chains. Hence, Locke argues, if the mind can move from idea to idea intuitively, it can establish the truth of "distant" ideas by connecting them indirectly to known and accepted ones. These connections, if they are all linked together through intuitively valid associations, can lead the thinker to truth, even though the connection between the intuitively valid idea and the initially questionable one may be based on a complicated chain of associations.

The freshman research paper seems to me to rest on basically empirical assumptions. Many textbooks that teach this paper focus on the importance of mechanical associations: gathering ideas and data, taking notes on cards, connecting these ideas to each other and to a thesis, which is often viewed as a complex of ideas that the student constructs either from his or her reading or past experience.

Like so many parts of our school rhetorics, this view of research papers is reductionist--it has, over the years, lost its
philosophical roots, its epistemological underpinnings. We have accepted as valid part of Lockean epistemology—the mechanistic part—and rejected the part of the system that addresses the most significant issues associated with the search for meaning. This is the part of Locke's philosophy known as probabilistic reasoning.

Probabilistic reasoning is the term Locke applies to the kind of understanding or knowledge that is inexact and probable rather than exact and intuitional. Much of human judgment, Locke argues, must by necessity be based on inexact knowledge. This is partly because the human mind is too gross in its perceptions to be able to understand much of the data that impinges on it. But it is also due to the fact that humans must often make decisions based on incomplete information and partially understood facts. This is particularly true in the political arena, in which politicians must make decisions without having all the information pertinent to a given issue. But it is also true in scientific research, in which the scientist trying to make a new discovery must attempt to test or to create a theory using inexact and partial data.

Because of this basic human condition, Locke developed a fairly coherent system of probabilistic reasoning. He has been criticized for not developing this loose collection of insights into a complete system of inductive logic, such as the one that Mill fashioned in the 19th century. But Locke apparently felt that such a scheme of logic would not give the human mind access to truth similar in exactness to that allowed by intuitive or demonstrative understanding, so he did not press probabilistic
reasoning beyond its rudimentary outline. This reasoning does, however, provide the English teacher with a useful system for teaching the research paper that raises fundamental questions not usually addressed by writing textbooks.

For Locke, probabilistic reasoning consists of four major strategies for probing a subject. These methods all serve heuristic as well as communicative functions because they provide ways for discovering information about a given issue and they also provide strategies for presenting those issues to an audience. In two fascinating essays, Hoyt Trowbridge has shown how probabilistic reasoning served both functions in the work of many 18th century writers, including Dr. Johnson and Gilbert White, the biologist.

The four major probabilistic strategies for exploring cloudy issues are 1) the use of maxims or principles, 2) the framing of hypotheses, 3) the use of analogy, and 4) the reliance on authority. All of these are, by definition, inexact; but they all would, to one degree or another, serve the freshman writer well when trying to discover significance within a topic area.

The first two methods, the use of principles or maxims and the use of hypotheses, are similar. Both require the thinker to begin reasoning deductively. Instead of working from sensory data and innate ideas developing from immediate experience, the thinker begins with an unproven abstraction. A maxim is a commonly-accepted truth while a hypothesis is a convenient abstract idea whose validity can be tested by direct observation or other kinds of proof. Both are tentative, carefully
presented, and both are used to test and uncover more valid knowledge. Too often students fail to recognize the distinction between an abstraction that an author presents and a more fundamental assertion based on evidence. Both to them appear to share the same degree of certainty, the same degree of value. Therefore, students cannot establish what Locke terms "degrees of assent," the degree of certainty—or the lack of it—that a proposition holds. Hence, a flimsy paperback arguing that the Bermuda Triangle is associated with Atlantus and hostile extraterrestrials enjoys in their eyes the same degree of assent as a scientific study of tides and storm patterns in the Triangle area.

Looking at it from another point of view, the hypothesis allows the student to construct a general statement that he or she can test by research and reflection. This is not, however, a thesis statement but a working generalization that can be modified or rejected as the research progresses.

Analogy is a third method of probabilistic reasoning. This strategy postulates that if events in one situation lead to a given conclusion, then the same conclusion can be reached in similar events. Eighteenth century philosophers, scientists, and logicians considered this the weakest method of reasoning; largely because it so often led to foolish conclusions. In The Natural History of Selborne, for instance, Gilbert White, usually the paragon of empirical reasoning, reached the most outlandish conclusions by analogy. Confronted with the fact that some birds disappeared during the winter, he concluded that they must hibernate, like some mammals that also disappear. He even toyed
with the ancient idea that some birds wintered under water. He never did completely accepted the undeniable fact that many species of bird migrated.

It is the fourth and final method of probabilistic reasoning, that based on authority, that provides the underpinning of the freshman research paper. This Locke viewed as second hand evidence, a necessary evil given that humans could not possibly, due to the limitations of time and space, experience all things directly. Because of this, the mind has to accept information from secondary and, by definition, questionable sources. It is this skepticism that student researchers lack almost entirely, and it is this view that theorists of the research paper have neglected to transfer from empirical philosophy.

Because of the untrustworthiness of second-hand evidence, Locke outlines six specific criteria for weighing testimonies. These, I suggest, might still prove useful to composition teachers. The first is the number of witnesses that report on a given incident. If many people report that an event occurred, or if many reach the same conclusion on an issue, this increases the probable validity of the assertion. On the other hand, the maverick who asserts that the Bermuda triangle is the work of extra-terrestrial creatures with enormous powers when the majority of writers point to powerful storms as the cause of destruction should be viewed skeptically.

The second consideration is the integrity of the witnesses. The testimony of an upstanding individual should be viewed less skeptically than the testimony of a scoundrel. Generally
speaking, then, a respected scientist should be viewed more positively than a charlatan. This is, of course, a value judgment, but our students, as educated individuals, should be taught to recognize that Einstein is a more believable figure than is a TV faith healer.

The third criterion is the author's design, which is a bit more subtle than the previous criteria. What is the writer's intention, purpose, or goal in writing the piece and presenting the evidence? Is it to sell books to the ignorant by means of sensational assertions? Is it to proselytize and convert? Is it to inform using reason and careful logical analysis? Students often do not make such distinctions, assuming that anything appearing in print has objective validity.

Fourth, what are the circumstances that gave rise to the discourse? This question requires students to examine the historical and political context of the source to determine what motivated the author to produce the piece. For instance, knowing that Nixon was about to be dropped from the Republican ticket when he gave the "Checker's Speech" helps the student evaluate the validity and intention of the speech.

The fifth criterion requires students to examine the internal consistency of the document. Obviously, if the discourse is riddled with factual inconsistencies or confused purposes, it loses validity and believability.

Sixth, are there any contrary testimonies on the subject? To apply this principle, students must be sensitive to the various arguments and viewpoints clustered about a given issue and be willing to weigh and consider all of them rather than
simply selecting the one or ones they consider personally acceptable.

Although the primary purpose of this paper has been to analyze the Lockean, empirical assumptions of the freshman research paper, I would like to end by making two practical suggestions to composition teachers. First, we as teachers have inherited a distinction between direct and indirect knowledge, between concrete and abstract understanding, with a definite prejudice in favor of the former. Our students, as participants in Western culture, should be taught this distinction, especially when writing research papers. The core of any paper should be, then, based on direct experience and direct involvement with a topic. It should not be based on a naive, generalized curiosity about, say, the pyramids of Egypt and why they were built. A student interested in raising gold fish and with some experience and interest in this area should write on raising gold fish.

Second, the research paper need not—indeed should not—be viewed as the presentation of unequivocal truth. It is not a stone tablet handed down from on high. Instead, it should be an exploration of a subject, perhaps using the strategies of Lockean probabilistic reasoning, which is in final analysis a general, skeptical view of the human mind and its ability to know. The research paper can be exploratory in the sense that it probes a topic rather than makes an authoritative statement about it. Students should learn to analyze and evaluate sources rather than use them as support in the simple sense of this term.
NOTES


3. Locke discusses probabilistic reasoning in chapters 14 through 20 of Book IV of the Essay.